

**IN THE UNITED STATES DISTRICT COURT FOR THE
NORTHERN DISTRICT OF OKLAHOMA**

SAMMY BEETS AND MELISSA BEETS,)
on behalf of T.B., a minor child, *et al.*)

Plaintiffs,)

v.)

BLUE TEE CORP., *et al.*)

Defendants.)

Case No. 09-CV-546-GKF-PJC

**DEFENDANTS' MOTION TO EXCLUDE THE EXPERT TESTIMONY
OF KIRK BROWN, PH. D. AND BRIEF IN SUPPORT THEREOF**

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TABLE OF CONTENTS

Introduction.....	1
Dr. Brown’s Opinions.....	1
Argument	8
1. Legal Standards.....	8
2. Judge Eagan has already held that significant portions of Exhibits 2 and 4 to Dr. Brown’s Report are inadmissible.....	10
3. The Court should exclude Dr. Brown’s testimony that tailings from the operations of Defendants’ alleged predecessors have become commingled with those of other operators.....	12
4. The Court should exclude Dr. Brown’s opinions set out in Exhibit 3 because the modeling he used is unreliable and because his opinions are not helpful to the jury.....	14
5. The Court should exclude Dr. Brown’s opinions set out in Exhibit 6 because his air dispersion modeling is unreliable, his analysis is not based on sufficient data and facts, and it is not helpful to the jury.....	16
Conclusion	23

<u>No.</u>	<u>EXHIBIT</u>
A	Expert Report of Kirk W. Brown, Ph.D. (Jan. 31, 2011)
B	Transcript of the Deposition of Kirk W. Brown, Ph.D. in <i>Cole, et al. v. Asarco, et al.</i> (June 30, 2004 and Dec. 7, 2004)
C	Defendants’ Motion to Exclude the Expert Testimony of Kirk Brown, Ph.D. and Brief in Support Thereof
D	Transcript of the Deposition of Kirk W. Brown, Ph.D. in <i>Cole, et al. v. Asarco, et al.</i> (March 7, 2011)
E	Peter J. Drivas, Ph.D. Expert Report in Response to Dr. Kirk Brown January 31, 2011 Report (July 29, 2011)
F	Melissa Beets’ Responses to Blue Tee Corp’s First Set of Interrogatories (Nov. 8, 2010)
G	Plaintiff Brandon Dry’s Objections and Responses to Blue Tee Corp’s First Set of Interrogatories (Nov. 8, 2010)
H	Teresa Palmer’s First Amended Responses to Blue Tee Corp’s First Set of Interrogatories (May 4, 2011)

I

John Kloer's Responses to Blue Tee Corp's First Set of
Interrogatories (Nov. 8, 2010)

TABLE OF AUTHORITIES

	Page(s)
CASES	
<i>Alexander v. Smith & Nephew, P.L.C.</i> , 98 F. Supp. 2d 1310 (N.D. Okla. 2000)	9
<i>Bitler v. A.O. Smith Corp.</i> , 400 F.3d 1227 (10th Cir. 2004)	9, 10
<i>Cole v. Asarco Inc.</i> , 256 F.R.D. 690 (N.D. Okla. 2009).....	passim
<i>Daubert v. Merrell Dow Pharms., Inc.</i> , 509 U.S. 579 (1993).....	passim
<i>Gen. Elec. Co. v. Joiner</i> , 522 U.S. 136 (1997).....	9
<i>Goebel v. Denver & Rio Grande Western R.R. Co.</i> , 346 F.3d 987 (10th Cir. 2003)	9
<i>Holder v. Gold Fields Mining Corp.</i> , No. 04-CV-564, 2007 WL 188130 (N.D. Okla. Jan. 22, 2007).....	passim
<i>In re Visa Check/ MasterMoney Antitrust Litig.</i> , 192 F.R.D. 68 (E.D.N.Y. 2000), <i>aff'd</i> 280 F.3d 124 (2d Cir. 2001).....	12
<i>Ingram v. Solkatronic Chem., Inc.</i> , No. 04-CV-0287-CVE-PJC, 2005 WL 3544244 (N.D. Okla. Dec. 28, 2005).....	8, 10
<i>Kumho Tire Co. v. Carmichael</i> , 526 U.S. 137 (1999).....	8
<i>Mitchell v. Gencorp Inc.</i> , 165 F.3d 778 (10th Cir. 1999)	9
<i>Palmer v. Asarco Inc.</i> , No. 03-CV-498-CVE-PJC, 2007 WL 2254343 (N.D. Okla. Aug. 3, 2007)	6, 10, 14, 16
<i>Palmer v. Asarco Inc.</i> , No. 03-CV-498-CVE-PJC, 2007 WL 2302584 (N.D. Okla. Aug. 7, 2007)	passim

<i>Rosen v. Ciba-Geigy Corp.</i> , 78 F.3d 316 (7th Cir.1996)	9
--	---

<i>Trucks Ins. Exchange v. MagneTek, Inc.</i> , 360 F.3d 1206 (10th Cir. 2004)	9
---	---

<i>Vickers v. General Motors Corp.</i> , 204 F.R.D. 476 (D. Kan. 2001).....	12
--	----

RULES

FED. R. CIV. P. 26(a)(2).....	2, 13
-------------------------------	-------

FED. R. CIV. P. 37(c)(1)	13
--------------------------------	----

Federal Rule of Evidence 702.....	8, 10, 23
-----------------------------------	-----------

Introduction

Kirk Brown is an agronomist and soil scientist. He offered opinions in support of requested certification of property owner and medical monitoring classes in *Cole, et al. v. Asarco, et al.*, Case No. 03-CV-327-GKF-PJC. He also attempted to perform plaintiff and defendant specific air dispersion modeling in *Palmer v. Asarco Inc.*, No. 03-CV-498-CVE-PJC, and offered certain rebuttal opinions in the Asarco bankruptcy proceeding. He has not done any work for this case. Instead, Plaintiffs have simply repackaged his prior reports – authored in 2004-08, before this case was filed – and intend to have Dr. Brown provide the same opinions he offered in these prior cases. Dr. Brown’s opinions should be excluded for a number of reasons. First, Judge Eagan has already ruled that many of his opinions from the *Cole* case are unreliable, irrelevant, or outside his area of expertise. This Court should follow Judge Eagan’s rulings on these issues. Dr. Brown should not be permitted to testify that Defendants’ tailings have been commingled with the tailings of other operators because he has not utilized any reliable methodology to reach this conclusion and such a conclusion is not based on sufficient data and facts. Work Dr. Brown performed in the *Palmer* case should be excluded because Dr. Brown’s air dispersion modeling is unreliable and because the modeling results are for properties not at issue in this case. Any testimony about the *Palmer* properties is irrelevant and would threaten to mislead and confuse the jury. For these reasons, Dr. Brown’s testimony should be excluded as outlined herein.

Dr. Brown’s Opinions

Dr. Brown has performed no work for this case. Instead, Plaintiffs have simply packaged together six expert reports and affidavits (Exhibits 2-7 of his report) he prepared between 2004

and 2008 in other cases and submitted these as Dr. Brown's expert report in this case.¹ (*See* Exhibit A attached hereto).

Exhibit 1. Exhibit 1 to his report is a similar cover page used to re-package his prior reports in the *Cole* case.

Exhibit 2. Exhibit 2 is a report Dr. Brown prepared in 2004 in support of class certification in the *Cole* case. It contains seven opinions:

- 4.1. Lead contamination in Picher and Cardin, Oklahoma is the result of co-mingling of waste from historical mining and milling operations.
- 4.2. The communities of Picher and Cardin, Oklahoma are built on lead mining residue.
- 4.3. Airborne dust from the chat piles and sediment ponds is an ongoing source of lead contamination on the properties throughout Picher and Cardin.
- 4.4 Residents who play, walk or work on chat piles are tracking lead contaminated material into homes where people are further exposed.
- 4.5. Dust from chat piles and yards gets into homes and causes elevated lead concentrations in household dust.
- 4.6. Lead in soil and house dust is the major source of contamination contributing to elevated blood lead levels in the children living in Picher and Cardin.
- 4.7. Property within the communities of Picher and Cardin has been damaged and there is continuing damage due to windblown, lead contaminated dust.

(Ex. 2 to Brown Rep., Ex. A, at 1). Of these opinions, Dr. Brown was the original author of Opinion 4.7 only (as well as the executive summary). (2004 Brown Dep., Ex. B, at 148:14-23). All other opinions were drafted by others at his firm and edited by Dr. Brown. (*Id.* at 140:14-25). None of the Plaintiffs in this action are mentioned in this report. In addition, the chat piles, chat bases, and tailings ponds associated with the historic operations of the alleged predecessors of Blue Tee and Gold Fields are not mentioned in this report. Significant portions of this report

¹ The packaged report submitted by Plaintiffs in this case has not been signed by Dr. Brown, as required by FED. R. CIV. P. 26(a)(2). The reports and affidavits comprising Exhibits 2-7 of his

were excluded by Judge Eagan in *Palmer v. Asarco Inc.*, No. 03-CV-498-CVE-PJC, 2007 WL 2302584 (N.D. Okla. Aug. 7, 2007).

Exhibit 3. Exhibit 3 is another report from the *Cole* class certification stage. It is a rebuttal to class certification expert reports submitted by defense experts Peter Drivas, Ph.D., Gale Hoffnagle, Ph.D., and Rosalind Schoof, Ph.D. Dr. Brown offers the following opinions in this rebuttal report:

1. The elevated lead contamination in the communities of Picher and Cardin is related to historical mining and milling operations.
2. The chat piles and tailing ponds in and around Picher and Cardin contain lead, which is an integral part of the dust which the wind transports from the piles and ponds onto the surrounding landscape.
3. Chat is a hazardous waste.
4. The chemical speciation of lead based on mineralogy does not provide conclusive evidence for determining the source of lead in soils in the Picher and Cardin communities.
5. A comparison of zinc:lead and lead:cadmium ratios is the only accurate and reliable method for determining the source of the soil lead.
6. Wind blown dust from the chat piles is a source of lead for ingestion by children.
7. The children in the Picher and Cardin communities are regularly exposed to elevated levels of lead resulting from mining during the regular and routine activities.
8. Lead concentration in soil particles does not decrease with decreasing particle size.
9. The common exposure to residual waste from mining, milling, and processing of lead ore outweigh the individual issues such as variability in exposure due to location, variability in sources, and temporal issues.

(Ex. 3 to Brown Rep., Ex. A, at 1). As part of his analysis, on pages 11-12, Dr. Brown performed air dispersion of a hypothetical 10 m x 10 m chat pile using the same emission rate

report have been signed.

that Judge Eagan found to be unreliable in *Holder v. Gold Fields Mining Corp.*, No. 04-CV-564, 2007 WL 188130, at *1-4 (N.D. Okla. Jan. 22, 2007). *See also Palmer*, 2007 WL 2302584, at *7 (excluding Kirk Brown's testimony to the extent he relied on the Sullivan emission rate found unreliable in *Holder*). None of the Plaintiffs in this action are mentioned in this report. In addition, the chat piles, chat bases, and tailings ponds associated with the historic operations of the alleged predecessors of Blue Tee and Gold Fields are not mentioned in this report.

Exhibit 4. Exhibit 4 purports to have been written in rebuttal to reports prepared by Defendants' experts Peter Drivas, Ph.D. and Gale Hoffnagle, Ph.D. for use in the class certification stage of the *Cole* case. (Ex. 4 to Brown Rpt., Ex. A, at ¶ 2). The Affidavit contains several sections. Dr. Brown's Opinions section, comprising paragraphs 14-17, contain the following opinions:

14. It is my opinion that the residents and children in the communities of Picher and Cardin continue to be routinely exposed to elevated concentrations of lead as a result of wind-blown dust. The principal route of exposure for children under age six is through ingestion, not inhalation of dust. The ingestion of dust occurs as a result of contact between the dust and the child's hands, feet or objects and the insertion of the dust contaminated hands into the child's mouth.

15. Deposition of wind-blown dust occurs both indoors and outdoors, and as such provides a source for ongoing lead contamination not only to yards, gardens, driveways, and roads, but also to all buildings, both residential and commercial.

16. Even after the remediation of residential yards and high access areas, there is sufficient lead remaining in the chat piles and tailing ponds to recontaminate all of the residential properties thus making it unsafe for children to live in the communities of Picher and Cardin.

17. Chat piles, tailing pond residues, and mining wastes continue to erode and act as continual sources of wind-blown, lead-laden dust (Gerberding, 2004). Other than the complete remediation of chat piles and tailings ponds, I know of no way to adequately eliminate the source of lead in this dust. These wastes will continue to act as sources of lead, which results in personal injury and property damage until they are remediated.

In a section of the Affidavit titled “Chat Pile Dust Emission and Deposition” (paragraphs 18-29), Dr. Brown attempts to provide support for the emission rate calculated by David Sullivan (and excluded by Judge Eagan). Dr. Brown relies heavily on Sullivan’s work as a basis for his opinions in the present case. At the time he prepared his Affidavit, Dr. Brown was aware that Sullivan’s work had been criticized by Defendants for a number of reasons, including overstatement of his emission rate by a factor of 100, caused by his misapplication of the climatic factor, or “C Factor.” Dr. Brown sought to bolster Sullivan’s emission rate by back-calculating from 16 days of air lead measurements performed by an EPA contractor in 1996. Judge Eagan has found the Sullivan emission rate to be unreliable and has already found that Kirk Brown should not be permitted to testify about the unreliable emission rate. *Holder*, 2007 WL 188130, at *1-4; *Palmer*, 2007 WL 2302584, at *7

In a section titled “Quapaw Air Monitoring Data” (paragraphs 30-37), Dr. Brown discusses monitoring performed by the Quapaw Tribe from October 2003 to March 2004. He claims to perform calculations relating to this data, with the ultimate goal of supporting the emission rate used by Sullivan. Finally, in a section titled “Recontamination of Remediated Properties” (paragraphs 38-44), Dr. Brown attempts to rehabilitate himself from testimony he provided in a December 7, 2004 deposition in the *Cole* case.

None of the Plaintiffs in this action are mentioned in this affidavit. In addition, the chat piles, chat bases, and tailings ponds associated with the historic operations of the alleged predecessors of Blue Tee and Gold Fields are not mentioned.

Exhibit 5. Exhibit 5 to Dr. Brown’s report is an affidavit submitted in response to a motion to exclude his testimony in the *Palmer* case. This affidavit merely sets forth Dr. Brown’s qualifications. None of the Plaintiffs in this action are mentioned in this affidavit. In addition,

the chat piles, chat bases, and tailings ponds associated with the historic operations of the alleged predecessors of Blue Tee and Gold Fields are not mentioned.

Exhibit 6. Exhibit 6 to Dr. Brown's report is an affidavit submitted in response to the motion to exclude his testimony in the *Palmer* case.² Dr. Brown recites some background information on the historic operations of the alleged predecessors of Blue Tee, Gold Fields, and Doe Run Resources Corporation. (Ex. 6 to Brown Rpt., Ex. A, at ¶¶ 13-43). He also reports on air dispersion modeling one of his associates performed on 99 chat piles and tailings ponds in the Picher area. Based on this modeling he attempted to determine percentage contribution of Blue Tee, Gold Fields, and Doe Run to windblown dust he claims was deposited at six of the *Palmer* plaintiffs' properties. (*Id.* at ¶¶ 44-57 and Attachments 10-14). In performing this modeling, Dr. Brown's associate used an emission rate that is approximately 100 times higher than the emission rate Judge Eagan found unreliable in *Holder* and *Palmer*.³ (*See id.* at ¶ 48). Based on this modeling, Dr. Brown made the following conclusions:

58. Each of the Defendants conducted mining and milling operation in Township 29 N, Range 23 E of Ottawa County, Oklahoma. Due to the climatic conditions in the region and the proximity of the Defendants' operations to the Plaintiffs' residence locations, it is my opinion that as a result of each Defendants' operations, each of the plaintiffs' residence locations was impacted by lead from the Defendants.

59. As indicated by the soil sampling conducted by USEPA, Plaintiffs' residence locations were contaminated by lead at concentrations greater than 500 mg/kg. It is my opinion that lead

² In *Palmer*, Dr. Brown was not permitted to testify about the opinions set forth in this affidavit because the affidavit was submitted after the expert report deadline and Judge Eagan determined that the opinions in the affidavit did not constitute proper supplementation. *See Palmer v. Asarco Inc.*, No. 03-CV-498-CVE-PJC, 2007 WL 2254343, at *1-4 (N.D. Okla. Aug. 3, 2007).

³ The Sullivan emission rate for chat piles was 1.28×10^{-7} g/m²/sec. *Holder*, 2007 WL 188130, at *1. The emission rate used in the modeling for this affidavit was 1×10^{-5} g/sec/m². (Ex. 6 to Brown Rpt., Ex. A, at ¶ 48).

in the wind-blown dust from the chat piles and tailings ponds contributed to the concentrations of lead in the environmental media at the Plaintiffs' residences.

60. As shown by the air dispersion/deposition modeling, it is my opinion that lead from the operations of each of the Defendants was transported to and deposited at each of the Plaintiffs' residence locations. The relative contribution of airborne lead deposition from each pile and pond at each individual location can be predicted and is independent of the unit area emission rate. Further, it is my opinion that lead from each Defendant's operations was commingled and therefore indistinguishable from the mixture of lead in the environment.

61. Based on the air dispersion/deposition modeling data, it is clearly evident that lead from the operations of each of the Defendants has impacted all of the Plaintiffs' residence locations. When combined with the contributions from additional activities such as mining; stockpiling, loading, and hauling of ore; distribution of chat for roads, fill and building construction; and surface water runoff, the contribution of lead from the Defendants' operations has had a direct impact on all of the Plaintiffs' residence locations. If left unabated, it is my opinion that lead from these activities coupled with the emissions from the chat piles and tailings ponds will continue to impact the Plaintiffs and their children.

(*Id.* at ¶¶ 58-61). None of the Plaintiffs in this action are mentioned in this affidavit and no air dispersion modeling was performed for residences where these four Plaintiffs claim to have lived.

Exhibit 7. Exhibit 7 to Dr. Brown's report is an expert rebuttal report submitted for Dr. Brown in the Asarco LLC bankruptcy. It purports to rebut expert testimony from Asarco's experts Chris Pfahl and David Cabe, who are not experts in this case. None of the Plaintiffs in this action are mentioned in this rebuttal report. In addition, the chat piles, chat bases, and tailings ponds associated with the historic operations of the alleged predecessors of Blue Tee and Gold Fields are not mentioned.

Argument

1. Legal Standards

The admissibility of expert testimony is governed by Federal Rule of Evidence 702:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

Rule 702 requires district court judges to act as gatekeepers and to screen expert testimony for both reliability and relevance. *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579 (1993). The objective of the Court’s gatekeeping function is “to make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.” *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999). The Court should exclude opinions that are neither scientifically reliable nor relevant according to the standards for admissibility set out in *Daubert* and Rule 702.

Under Rule 702’s first prong – reliability – district courts must determine whether the expert’s testimony reflects “scientific knowledge,” whether the expert’s findings are “derived by the scientific method,” and whether the expert’s work product amounts to “good science.” *Daubert*, 509 U.S. at 590, 593. Testimony based upon “subjective belief,” “unsupported speculation,” and untested hypothesis must be excluded. *Id.* at 590. Novel, untested theories and methodologies have no place before the jury. “[T]he courtroom is not the place for scientific guesswork, even of the inspired sort. Law lags science; it does not lead it.” *Ingram v.*

Solkatronic Chem., Inc., No. 04-CV-0287-CVE-PJC, 2005 WL 3544244, at *9 (N.D. Okla. Dec. 28, 2005) (quoting *Rosen v. Ciba-Geigy Corp.*, 78 F.3d 316, 319 (7th Cir.1996)).

In screening for reliability, the Court is instructed to consider four factors:

- (1) *Testing* – Whether the expert’s theory can be, and has been, tested;
- (2) *General Acceptance* – Whether the theory, technique, or methodology is generally accepted in the relevant scientific community;
- (3) *Peer Review* – Whether the theory or technique has been subjected to peer review and publication; and
- (4) *Rate of Error* – Whether the technique or methodology has an acceptable known or potential rate of error.

See *Daubert*, 509 U.S. at 593-94. These four factors are not exhaustive or definitive; the Court has “wide discretion both in deciding how to assess an expert’s reliability and in making a determination of that reliability.” *Bitler v. A.O. Smith Corp.*, 400 F.3d 1227, 1233 (10th Cir. 2004). “[T]he Tenth Circuit has emphasized that any analytical gap in an expert’s methodology can be a sufficient basis to exclude expert testimony under *Daubert*.” *Holder*, 2007 WL 188130, at *3 (N.D. Okla. Jan. 22, 2007) (citing *Trucks Ins. Exchange v. MagneTek, Inc.*, 360 F.3d 1206, 1212-13 (10th Cir. 2004); *Goebel v. Denver & Rio Grande Western R.R. Co.*, 346 F.3d 987, 992 (10th Cir. 2003)). “If any step renders [an expert’s] opinion unreliable – either in the choice of methodology or its application – his opinion is inadmissible.” *Alexander v. Smith & Nephew, P.L.C.*, 98 F. Supp. 2d 1310, 1316 (N.D. Okla. 2000) (citing *Mitchell v. Gencorp Inc.*, 165 F.3d 778, 782 (10th Cir. 1999)). And “nothing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion offered.” *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997).

Under Rule 702's relevance requirement, the Court must ensure that the proffered expert testimony is "relevant to the task at hand," *i.e.*, that it logically advances a material aspect of the proposing party's case. *Daubert*, 509 U.S. at 597. This prong, referred to as "fit," requires the Court to "look at the logical relationship between the evidence proffered and the material issue that evidence is supposed to support to determine if it advances the purpose of aiding the trier of fact." *Bitler*, 400 F.3d at 1234. Even if the proffered evidence followed reliable methodologies, "it might not have sufficient bearing on the issue at hand to warrant a determination that it has relevant 'fit.' ... [I]t is the trial court's task to make this fitness determination." *Id.*

As the proponent of expert testimony, Plaintiffs bear the burden of demonstrating the admissibility of the proffered evidence. *See Daubert*, 509 U.S. at 592, n.10; *Ingram*, 2005 WL 3544244, at *12; *Holder*, 2007 WL 188130, at *3.

2. Judge Eagan has already held that significant portions of Exhibits 2 and 4 to Dr. Brown's Report are inadmissible.

In the *Palmer* personal injury actions, plaintiffs sought to use Dr. Brown's April 22, 2004 *Cole* class certification expert report and his May 27, 2005 *Cole* class certification affidavit as their fate and transport expert reports.⁴ These two documents are attached to Dr. Brown's *Beets* report as Exhibits 2 and 4 respectively. After full briefing and a *Daubert* hearing, Judge Eagan determined that many of Dr. Brown's opinions are inadmissible.⁵ *See Palmer*, 2007 WL 2302584. Specifically, Judge Eagan found as follows:

⁴ The *Palmer* plaintiffs also sought to use Dr. Brown's October 28, 2004 *Cole* rebuttal report (Exhibit 3 to his *Beets* report) and his June 14, 2007 *Palmer* affidavit (Exhibit 6 to his *Beets* report) to bolster Dr. Brown's testimony. Judge Eagan held that neither of these documents could be used by the *Palmer* plaintiffs. *See Palmer*, 2007 WL 2254343.

⁵ For the Court's convenience, a copy of the *Palmer* Motion to Exclude Dr. Brown is attached as Exhibit C, and Defendants' arguments therein are incorporated by reference.

- Dr. Brown would not be permitted to testify, based on his “commingling” theory, that lead from each chat pile reached each plaintiff’s residence. As noted by Judge Eagan, “[t]his type of testimony would require site-specific modeling for chat piles in several locations across Ottawa County, Oklahoma, and this type of testimony goes beyond the non-excluded modeling upon which Dr. Brown relies.” *Id.* at *5. The Court concluded that: “Plaintiffs have extended the comingling theory to its breaking point and, in this instance, Dr. Brown has gone too far. Therefore, he will not be permitted to testify that lead from each chat pile reached each plaintiff’s residence.” *Id.*
- Judge Eagan excluded Dr. Brown’s testimony to the extent he relied on the air dispersion modeling and emission rate calculation used by David Sullivan in the *Holder* case. Judge Eagan excluded that modeling and calculation as unreliable in *Holder*, and the Court ruled that it “will not allow Dr. Brown to rely on or refer to Sullivan’s modeling as a basis for his opinions when he testifies at trial.” *Id.* at *7.
- Judge Eagan found that Dr. Brown was not qualified to testify about ingestion of lead and elevation of blood lead levels in the *Palmer* plaintiffs. “While Dr. Brown can testify how lead dust is transported from one place to another, the actual ingestion and elevation of blood lead levels is outside his expertise.” *Id.* at *8. The Court further stated that:

Dr. Brown cites IEUBK modeling in an attempt to show that children will actually have elevated blood lead levels. This implies that plaintiffs have actually ingested the lead, and this goes well beyond the scope of his knowledge and expertise as an expert in environmental fate and transport. Dr. Brown can testify about an increased risk of lead exposure for children living in Picher and Cardin, but he will not be permitted to testify that any child has had such exposure or has had an elevated blood lead level. The Court finds that Dr. Brown should be allowed to offer opinion 5 to the extent it is consistent with this Opinion and Order, but opinion 6 should be excluded.

Id. at *9.

- Judge Eagan excluded Dr. Brown’s property damage opinions because they were not relevant to the issues in the personal injury cases. *Id.* at *10.

Although not performing a full Daubert analysis, this Court has also expressed concerns about the reliability of the opinions expressed by Dr. Brown. In its Opinion and Order denying class certification in the *Cole* case, the Court observed as follows:

Plaintiffs’ description of the Class Area is also troubling. Plaintiffs define the Class Area as “the entire geographic area comprising the towns of Picher and Cardin” and “the Picher-Cardin School District.” To support the geographic designation, plaintiffs present the testimony of their expert, Kirk Brown, that lead from all chat piles could have “at least” some effect on every property in the

proposed Class Area. Dr. Brown opined that if a circle of arbitrary radius were drawn around every historical mine shaft and every existing chat pile in Picher and Cardin, those circles would encompass much of both towns. However, Dr. Brown offered no scientific basis for the size or uniform shape of his circles, did not conduct sampling to verify his theory concerning the extent of contamination within the circles, and did not link the sites relied upon to the actual activities of defendants or the prevailing winds. While a *Daubert* analysis of expert opinion is not required at the class certification stage, the court should not certify a class on the basis of an expert opinion so flawed that it is inadmissible as a matter of law. The court questions whether Dr. Brown's report is based on a reliable foundation.

Cole v. Asarco Inc., 256 F.R.D. 690, 697, n.3 (N.D. Okla. 2009) (citing *In re Visa Check/*

MasterMoney Antitrust Litig., 192 F.R.D. 68, 76-77 (E.D.N.Y. 2000), *aff'd* 280 F.3d 124 (2d Cir. 2001); *Vickers v. General Motors Corp.*, 204 F.R.D. 476, 479 (D. Kan. 2001)).

Plaintiffs in this action are in precisely the position as the plaintiffs in the *Palmer* cases. They are making identical personal injury claims and attempting to use the same testimony from Dr. Brown. For the reasons articulated by Judge Eagan in *Palmer*, the Court should adopt Judge Eagan's rulings and exclude Dr. Brown's testimony consistent with that prior holding.

3. The Court should exclude Dr. Brown's testimony that tailings from the operations of Defendants' alleged predecessors have become commingled with those of other operators.

In the first opinion to his April 12, 2004 *Cole* class certification report (Exhibit 2 to his *Beets* report) Dr. Brown opines that lead contamination in the Picher/Cardin area was caused by the commingling of mining and milling wastes. (Ex. 2 to Brown Rpt., Ex. A, at 12-13).

Specifically, Dr. Brown states:

It is my opinion to a reasonable degree of scientific certainty that the lead contamination in the communities of Picher and Cardin, Oklahoma is the result of the co-mingling of waste from historical mining and milling operations. Residue sources of waste, including of mine tailings (chat piles), tailings ponds, waste material, and residual resulting from the mining, milling, and

processing of lead ore, were distributed widely as a result of historical operations.

(*Id.* at 12). Dr. Brown does not disclose what methodology he used to reach this conclusion.⁶ In the four paragraphs supporting this opinion, he cites to two sources for information about how mining and milling were performed: a 1932 publication titled *Miami-Picher Zinc-Lead District* and a 1986 publication titled *Stability Problems Associated with Abandoned Underground Mines in the Picher Field Northeastern Oklahoma*. (*Id.* at 12-13). In formulating this opinion, he does not offer any information about the operations of American Zinc (Blue Tee's alleged predecessor) or Tri-State Zinc (Gold Fields' alleged predecessor). Nor does he state that waste from the operations of American Zinc or Tri-State Zinc was commingled or that commingled waste from the operations of American Zinc or Tri-State Zinc caused lead contamination at any locations in Picher or Cardin. (*See id.*).

The Court should prohibit Dr. Brown from offering any opinions relating to commingled waste from the operations of Defendants' alleged predecessors. All of Dr. Brown's commingling opinions are generic and do not relate to any specific defendant. Because defendant-specific opinions have not been disclosed in Dr. Brown's report, he is therefore precluded from offering such testimony under Rule 37(c)(1) (excluding evidence a party failed to provide as required under Rule 26(a)).

Further, given that Dr. Brown has done no analysis of commingling by these specific Defendants, his generalized opinion about commingling should also be excluded because it will not be helpful to the jury. Presenting this generalized testimony to the jury would serve no purpose other than to improperly suggest that commingling of waste by American Zinc and Tri-

⁶ As discussed above, Judge Eagan has already held that Dr. Brown may not use his commingling

State Zinc is the cause of lead contamination at Plaintiffs' former residences in Picher and Cardin. Dr. Brown has not offered such an opinion and has done no work which would allow him to offer that specific opinion. Therefore, Dr. Brown's generalized commingling opinion should be excluded and Dr. Brown should not be permitted to state or imply that lead contamination in the Picher/Cardin area has been caused by the commingling of waste by American Zinc or Tri-State Zinc.

4. The Court should exclude Dr. Brown's opinions set out in Exhibit 3 because the modeling he used is unreliable and because his opinions are not helpful to the jury.

Judge Eagan did not perform a *Daubert* analysis of Dr. Brown's *Cole* class certification rebuttal report (Exhibit 3 to the *Beets* report) because she found that it was not properly disclosed in the *Palmer* case and that Dr. Brown was therefore prohibited from offering any testimony disclosed in the rebuttal report. *See Palmer*, 2007 WL 2254343, at *5-6. This report was intended to rebut certain class certification expert opinions offered by three of Defendants' experts in the *Cole* case – Dr. Peter Drivas, Dr. Gale Hoffnagle, and Dr. Rosalind Schoof. Two of these experts – Drs. Hoffnagle and Schoof – are not designated as experts by Blue Tee or Gold Fields, so any rebuttal of their opinions for the *Cole* case is irrelevant and not helpful to the jury. Although Dr. Drivas has been designated as an expert in this case, he has prepared a case-specific expert report here and is not relying on his *Cole* class certification expert report. Dr. Brown's attempted rebuttal of a report that is not at issue in this case is irrelevant and will not be helpful to the jury.

In addition, Dr. Brown's opinions about air dispersion modeling should also be excluded because they depend on the air dispersion modeling and emission rate calculation which were

theory to testify that lead from each chat pile reached each property in Picher and Cardin.

previously found to be unreliable by Judge Eagan. In section 3.2.3 of his *Cole* rebuttal report, Dr. Brown performs air dispersion modeling of a hypothetical 10 m x 10 m chat pile. He then attempts to extrapolate his modeling results to a hypothetical 250 m x 250 m hypothetical chat pile to show that dust from chat piles can travel up to 400 meters via wind dispersion. (*See* Ex. 3 to Brown Rpt., Ex. A, at 11-12). In performing this air dispersion modeling,⁷ Dr. Brown employed the same emission rate used by David Sullivan in prior Tar Creek personal injury litigation. According to Dr. Brown: “The model domain was simplified to a 10 by 10 meter source area with a lead emission rate of 1.51×10^{-7} g/m²/year (the same emission rate Dr. [sic] Sullivan and Dr. Shields used, for comparison).” (*Id.* at 11).

Judge Eagan has already found that the air dispersion modeling and emission rate calculated by David Sullivan are unreliable. *Holder*, 2007 WL 188130, at *1-4 (N.D. Okla. Jan. 22, 2007). She has also found that Dr. Brown should not be permitted to testify about or rely on Mr. Sullivan’s air dispersion modeling or the emission rate he inaccurately calculated. *See Palmer*, 2007 WL 2302584, at *7. Dr. Brown’s use of Mr. Sullivan’s unreliable emission rate in his own air dispersion modeling renders his modeling unreliable, and any testimony about or based on this air dispersion modeling should be excluded.

Finally, Dr. Brown’s opinions about the ingestion of dust by children should be excluded because, as Judge Eagan has already found, such testimony goes beyond his area of expertise. Dr. Brown offers such opinions in two places. First, in section 3.2.5 of his *Cole* rebuttal report, Dr. Brown states as follows:

Elevated lead levels coupled with the hand-to-mouth behavior puts these children at even greater risk for high blood lead levels. The

⁷ Dr. Brown did not perform the air dispersion modeling himself. He relied on an assistant to perform the modeling. (2004 Brown Dep., Ex. B, at 335:22-25).

Baseline Human Health Risk Assessment determined that, on average, 82% of the total lead uptake in children was from ingestion of soil and dust (B&R, 1997; USEPA, 1996; E&E, 1996). Since children six years old and under routinely put things in their mouths, this pathway is the prevalent mode of exposure. Children six years old and under are also known to be greatly affected by lead uptake as a result of ingestion (ATSDR, 1992).

(Ex. 3 to Brown Rpt., Ex. A, at 16). He makes a similar statement in section 3.6, titled “Ingestion of Dust.” (*Id.* at 20-21).

As Judge Eagan determined in *Palmer*, issues relating to the actual ingestion of lead by children goes beyond Dr. Brown’s expertise: “While Dr. Brown can testify how lead dust is transported from one place to another, the actual ingestion and elevation of blood lead levels is outside of his expertise.” *Palmer*, 2007 WL 2302584, at *8. Dr. Brown’s testimony, as disclosed in sections 3.2.5 and 3.6 of his *Cole* rebuttal report, is exactly the sort of testimony that Judge Eagan deemed inadmissible in *Palmer*. Likewise, the Court here should exclude his testimony relating to ingestion of lead and elevated blood lead levels in children because such issues fall outside his expertise.

5. The Court should exclude Dr. Brown’s opinions set out in Exhibit 6 because his air dispersion modeling is unreliable, his analysis is not based on sufficient data and facts, and it is not helpful to the jury.

Judge Eagan did not perform a *Daubert* analysis of Dr. Brown’s Exhibit 6 report from the *Palmer* case because she determined that it was not properly disclosed by plaintiffs and did not constitute proper supplementation of Dr. Brown’s earlier opinions. *See Palmer*, 2007 WL 2254343, at *5-6. In this report, Dr. Brown, for the only time in any of his multiple reports and affidavits relating to the Tar Creek site, attempts to link defendants’ operations to lead at certain residence locations. However, Dr. Brown’s analysis and conclusions should be excluded for several reasons. First, the air dispersion modeling on which he relies is unreliable because he

used a hypothetical “arbitrary” emission rate 100 times higher than that found to be unreliable by Judge Eagan and because he used an outdated model. Second, his modeling does not relate to any Plaintiffs in this litigation, and is therefore irrelevant and will not be helpful to the jury. And third, the defendant-specific operations information he uses is not based on sufficient data or facts to act as a stand-alone opinion.

A. Dr. Brown’s air dispersion modeling is unreliable.

In an attempt to connect Defendants to the residences of the *Palmer* plaintiffs, Dr. Brown arranged to have air dispersion modeling performed on 99 tailings accumulations in the Picher/Cardin area.⁸ (Ex. 6 to Brown Rpt., Ex. A, at ¶¶ 44-57). The following addresses were used as receptor locations, each of which was connected to one of the *Palmer* plaintiffs:

405 S. Francis
112 S. Ella
613 S. Francis
403 S. Connell
453 S. Connell
214 E. 9th Street

(*Id.* at ¶¶ 52-57). The ISCST3 model was used because, according to Dr. Brown, it “is the model recommended by USEPA for air dispersion/deposition modeling.” (*Id.* at ¶¶ 44). For the emission rate, “a unitary emission rate of 1×10^{-5} g/sec/m² was used for all emission sources.” (*Id.* at ¶¶ 48). Dr. Brown did not attempt to use the modeling to quantify the *amount* of lead at each *Palmer* plaintiffs’ residence from each source. Instead, he used the modeling to attempt to determine the relative contribution of each defendant, regardless of the actual amount of lead. (2011 Brown Dep. Ex. D, at 20:14-21:5; 23:13-24:20). As Dr. Brown has testified:

⁸ Dr. Brown did not perform the modeling himself. Instead, he relied on his boss, Zi Zong Wong, to run the air model. (2011 Brown Dep., Ex. D, at 31:12-20; 6:15-18).

Q. So that nothing in Exhibit 6 is intended even to express an opinion about how much lead got from a particular defendant's location to a particular plaintiff's residence, in effect, correct?

A. That's correct.

Q. Similarly nothing in Exhibit 6 is intended to reflect the actual mass contribution of lead from any defendant's location to lead in the ambient air anywhere in Picher; isn't that correct?

A. That's correct, not numerically just relatively.

(*Id.* at 20:21-21:5). In other words, Dr. Brown's opinions relate only to the relative percentage of an unknown quantity of lead that he believes (but has not modeled or calculated) may have been transported by air from chat piles to the *Palmer* plaintiffs' residences.⁹

Two specific issues render the *Palmer* air dispersion modeling exercise unreliable. First, Dr. Brown utilized an arbitrary emission rate that does not represent the actual emissions from the modeled chat piles.

Q. Is it your understanding that that unit emission rate that's used from each of the piles does not necessarily represent the actual emissions that would have taken place from those piles during the time that you were modeling?

A. That's correct.

Q. Where did that unit emission rate come from?

A. It's -- essentially we put in one; but to scale it so that we would have numbers that are reasonable, we put in 1 times 10 minus 5.

Q. So, that's an arbitrary emission rate that was not calculated in any manner using any equation or formula or source or anything, correct?

A. That's correct.

Q. Just something you made up?

A. It was arbitrary. It was designated as that.

⁹ Because of the nature of air dispersion modeling, all receptors, no matter how distant from a source, will always show a positive, non-zero emission impact from the source. (*Id.* at 129:17-130:3). By way of example, a receptor in Houston, Texas will show positive, non-zero impacts from sources in Picher, Oklahoma and relative contributions could be calculated, even though the quantity could not be detected by monitoring equipment. (*Id.*).

(*Id.* at 27:8-23). This arbitrary emission rate – 1×10^{-5} g/sec/m² – is approximately 100 times higher than the emission rate calculated by David Sullivan in the *Holder* case (1.28×10^{-7} g/m²/sec). *Holder*, 2007 WL 188130, at *1. As Dr. Brown acknowledged;

Q. It is true, is it not, that that unit emission rate is much higher than any actual emission rate that any researcher has ever attributed to any source in Picher/Cardin?

A. Yes. And it's approximately a hundred times higher.

(2011 Brown Dep., Ex. D, at 33:18-23). Judge Eagan determined that Mr. Sullivan's emission factor was unreliable because his erroneous calculation resulted in an emission rate that was inflated by a factor of 100.¹⁰ *Id.* at *1-4. Given Judge Eagan's ruling in *Palmer* that Dr. Brown would not be allowed to rely on Mr. Sullivan's unreliably calculated emission rate, he should not be allowed to substitute an admittedly arbitrary emission rate that does not reflect actual emissions and is 100 times higher than Mr. Sullivan's unreliable emission rate. This fundamental flaw in the *Palmer* modeling renders all the modeling results (upon which his Exhibit 6 opinions are based) inadmissible.

Further, Dr. Brown's modeling does not support the ultimate conclusion he draws from it. Dr. Brown offers the following opinion in paragraph 60 of his *Palmer* affidavit: "As shown by the air dispersion/deposition modeling, it is my opinion that lead from the operations of each of the Defendants was transported to and deposited at each of the [*Palmer*] Plaintiffs' residence locations." This opinion does not flow from the modeling described in the affidavit. Dr. Brown testified that he used an arbitrary emission rate that does not represent actual emissions from the chat piles. (2011 Brown Dep., Ex. D, at 27:8-23). The modeling was intended to demonstrate relative contributions, but does not model any actual impacts on the *Palmer* plaintiffs' properties.

¹⁰ Given the compounding overstatements of Sullivan (100x) and Brown (100x), Dr. Brown's

(*Id.* at 22:14-18; 20:21-21:5; 23:13-24:16). Yet Dr. Brown infers from the arbitrary emissions and the relative, non-quantitative modeling results that there has been an actual impact at each *Palmer* residence modeled. If Dr. Brown wished to reach this conclusion, he could have modeled actual emissions and deposition. He did not. The arbitrary emissions he modeled simply do not permit him to infer actual impacts, and lacking a reliable connection between the modeling and the conclusion, his opinion is no more than *ipse dixit*.

The *Palmer* modeling is also unreliable because it was based on an obsolete and outdated computer model. Although Dr. Brown asserted when he signed his affidavit in 2007 that the model he used (the ISCST3 model) is “recommended by USEPA for air dispersion/deposition modeling,” he was wrong. The ISCST3 model became obsolete in November 2005, when it was replaced by EPA with the AERMOD model. (*See* Expert Report of Peter J. Drivas, Ph.D., Ex. E, at 77-78). At his deposition, Dr. Brown acknowledged that EPA was transitioning to AERMOD, but was unsure whether the switch occurred before or after he signed his *Palmer* affidavit. (2011 Brown Dep., Ex. D, at 110:14-111:6). Given that Dr. Brown used an obsolete air model, his modeling results are unreliable and should be excluded.

B. Dr. Brown’s modeling is irrelevant and not helpful to the jury.

Even if it were reliable (which it is not), Dr. Brown’s air dispersion modeling should be excluded because it is irrelevant and is not helpful to the jury. As noted above, this work (which was done in connection with the *Palmer* case) models relative impacts at six specific residential addresses associated with the *Palmer* plaintiffs. However, none of the Plaintiffs in this case ever lived at any of these residential addresses. (*See* Melissa Beets’ Resp. to Blue Tee Corp’s 1st Set of Interrogs., Ex. F, at 3 (Answer to Interrogatory No. 1); Plaintiff Brandon Dry’s Obj. and Resp.

emission rate is at least 10,000 times too high.

to Blue Tee Corp's 1st Set of Interrogs., Ex. G, at 3 (Answer to Interrogatory No. 1); Teresa Palmer's 1st Am. Resp. to Blue Tee Corp's 1st Set of Interrogs., Ex. H, at 3 (Answer to Interrogatory No. 1); John Kloer's Resp. to Blue Tee Corp's 1st Set of Interrogs., Ex. I, at 3 (Answer to Interrogatory No. 1)). In fact, one of the Plaintiffs in this case, JPAK, lived in Quapaw, Oklahoma (several miles away from any of the *Palmer* plaintiff residences in Picher). (See John Kloer's Resp. to Blue Tee Corp's 1st Set of Interrogs., Ex. I, at 3 (Answer to Interrogatory No. 1)). The relative impacts at six addresses where none of the *Beets* Plaintiffs claims exposure are not relevant to any issue in this case and would serve only to mislead and confuse the jury. Dr. Brown could have performed air dispersion modeling to determine impacts at these four Plaintiffs' residences, but he did not. The irrelevant modeling results for the six *Palmer* plaintiffs will not be helpful to the jury and should therefore be excluded.

C. Dr. Brown's statements about the historic operations of Defendants' alleged predecessors are not based on sufficient facts.

Finally, even if the modeling results are excluded, Plaintiffs may attempt to have Dr. Brown testify about the historic mining and milling operations of American Zinc and Tri-State Zinc, as set forth in paragraphs 13-35 of his *Palmer* affidavit. However, Dr. Brown is not qualified to offer stand-alone opinions on these Defendants' operational histories and the statements in these paragraphs are not based on sufficient facts or data. Dr. Brown is not a historian and there are no historians on his staff. (2011 Brown Dep., Ex. D, at 114:20-115:3). The historical operations paragraphs were prepared by people on Dr. Brown's staff. Dr. Brown himself reviewed "a few of them" after they were prepared by his staff, though he does not recall which ones. (*Id.* at 112:13-113:4). The statements are all based on documents provided to Dr. Brown by counsel; his staff did no independent research on these topics. (*Id.* at 114:8-19).

Although the descriptions of operations contained in paragraphs 13-35 may be sufficient for the purposes for which they were used by Dr. Brown (i.e. determining who to assign various chat piles to for the modeling exercise), they are not sufficient to stand as a separate opinion. Nothing in Dr. Brown's training as a soil scientist or environmental fate and transport expert qualifies him to examine the historical record and reach conclusions regarding historical events. He has not performed any methodology used by historians to determine historical facts from the historical record. Instead, he has simply reviewed and reported on several documents provided to him by counsel (most of which are secondary sources¹¹) without any independent investigation. If Plaintiffs seek to introduce expert historical evidence of the operations of American Zinc and Tri-State Zinc, they should have retained a qualified expert historian to develop such opinions using an appropriate historical research methodology. They have not done so, and their soil scientist, Dr. Brown, should not be permitted to offer expert opinions on the limited historical record he was provided by counsel.¹²

The Court should exclude all of Dr. Brown's testimony based on his *Palmer* affidavit. The air dispersion modeling is unreliable because it used both an obsolete model and an unreliable "arbitrary" emission factor. The model results will not be helpful to the jury because they describe impacts on properties that are not at issue in this litigation. And the historical

¹¹ For example, Dr. Brown relies extensively on the expert reports of Lee Levinson (a plaintiff expert in *Herd* and *Holder*) and Richard Bullock (a defense expert in *Palmer*, *Holder*, and this case) rather than looking at the original lease and other operational documents. (See Ex. 6 to Brown Rpt., Ex. A, at ¶¶ 14-23, 26-28, 30-34).

¹² In addition to paragraphs 13-35 describing the operations of the alleged predecessors of Blue Tee and Gold Fields, the Court should also exclude the maps comprising Attachments 4-7, which are based on these descriptions.

operational information used by Dr. Brown for his modeling would not be appropriately admitted as stand-alone opinions by a soil scientist such as Dr. Brown.

Conclusion

For the reasons set forth herein, Dr. Brown's proposed testimony should be excluded under Rule 702 and *Daubert*.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I do hereby certify that on the 31st day of October 2011, I electronically transmitted the foregoing documents to the Clerk of the Court using the ECF System for filing and transmittal of a Notice of Electronic Filing to the following ECF registrants:

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